DRAGONFLIES AND DAMSELFLIES (ODONATA) FROM BARROW AND NEARBY ISLANDS OFF THE COAST OF WESTERN AUSTRALIA

By C. N. Smithers and W. H. Butler
The Australian Museum, 6-8 College St, Sydney, N.S.W. 2000
and
Wanneroo, Western Australia 6065

Abstract

This paper provides records of six species of recently collected Odonata from the Montebello, Lowendal and Barrow Island groups off the coast of Western Australia.

Introduction

This paper deals with Odonata collected and observed between 1st and 18th May, 1982 on the Montebello and Lowendal Islands and on Barrow and nearby smaller islands off the coast of Western Australia. Ten islands were visited, most time being spent on Barrow, by far the largest of the islands. Descriptions of the islands, especially Barrow, can be found in Serventy and Marshall (1964), Butler (1970, 1975, 1975a) and Burbidge and Main (1971). Recent detailed vegetation studies of Barrow have been carried out by Buckley (in press). The Montebello islands are described in Montague (1914). Material collected will be deposited in the Western Australian Museum.

There is no permanent fresh water on any of the islands but on Barrow there is a large galvanized iron tank set in a concrete surround in which rainwater accummulates. There are a few brackish water pools, also on Barrow. After rain ephemeral pools are found in drainage courses, especially where earth walls have been built across them to slow down water loss to the sea but these pools are too short-lived to be of value as breeding sites for damselflies or dragonflies. Nymphal exuviae of *Pantala flavescens* (Fabricius) were found on the sides of the tank and females of *Macrodiplax cora* (Brauer) were seen apparently ovipositing in one of the brackish pools. These were the only signs of breeding activity noticed on any of the islands.

Table 1 lists the islands visited and the species collected and observed on each. It should be noted that the Lowendals are not individually named; the two visited are the largest of the southern islands and that immediately to the north of it. The dragonfly nomenclature used here is that of Watson (1974).

Watson (1969) did not record any species from the offshore islands when dealing with the fauna of the adjacent Western Australian mainland and did not, apparently, include the islands when he gave the distribution of Australian Odonata by broad regions (Watson 1974). The islands dealt with here lie off the coast of his "north-west of Western Australia" region and all the species recorded here from the islands were listed for the mainland of his region. The present records appear to be the first which are specifically from the islands. It should be remembered that the records and comments in this paper relate only to the period from 1st to 18th May, 1982.

Records

COENAGRIONIDAE

Ischnura aurora Brauer

Only one female of this species was collected near the centre of Barrow Island. Despite the fact that it is small and a weak flyer it is a species which has invaded many islands across wide expanses of water. It is widespread in Australia and New Zealand and occurs from India to the central Pacific (Watson 1969). It is possible that it breeds in the tank on Barrow Island but no direct evidence for this was found.

AESHNIDAE

Hemianax papuensis (Burmeister)

This is a powerful flyer and frequent immigration from the mainland is likely. It is well known as a long distance migrant, having been reported migrating with *Diplacodes bipunctata* (Brauer). One specimen was taken on Barrow Island and a second captured, but escaped, on Boodie Island.

LIBELLULIDAE

Pantala flavescens (F.)

This was by far the commonest species, sometimes seen in large numbers, apparently congregating in areas where suitable insect prey was in flight or in the lee of high ground, sheltering from wind. It was collected or seen on all the islands except Mushroom Island, the smallest visited. Undoubtedly immigration is frequent as it is a well known, almost world-wide, strongly-flying migrant species. It breeds on Barrow Island in the tank referred to above and is the only species of which nymphal exuviae were found.

Trapezostigma loewi (Brauer)

This species was collected only on Barrow Island. It is a strong flying migrant species and frequent immigration from the mainland seems likely.

Macrodiplax cora (Brauer)

Five specimens were collected on Barrow Island and others seen on Hermite Island (Montebellos). A female was seen apparently ovipositing in a brackish pool on Barrow Island but there was no evidence of the presence of nymphs.

Diplacodes bipunctata (Brauer)

This migrant species was common and seen on all islands except Hermite although undoubtedly it occurs there at times. Frequent immigration is possible as it is a widespread species occurring from Indonesia to Micronesia and Oceania as well as over much of Australia (Watson 1969).

Comments

With the exception of *I aurora* all the species recorded are strong flyers and most have been recorded as migrants in Australia or other parts of their range (Tillyard 1917, Smithers 1970). All are, therefore, probably

TABLE 1
Records of Odonata on Montebello, Lowendal and Barrow Islands and nearby smaller islands

Species	Montebellos		Lowendals		Barrow and nearby islands					
	Trimouille	Hermite	Lowendal (N)	Lowendal (S)	Mushroom	N. Double	S. Double	Barrow	Middle	Boodie
COENAGRIONIDAE										
Ischnura aurora								*		
AESHNIDAE										
Hemianax papuensis								*		*
LIBELLULIDAE										
Pantala flavescens	*	*	*	*		*	*	*	*	*
Trapezostigma loewi								*		
Macrodiplax cora		*						*		
Diplacodes bipunctata	*		*	*	*	*	*	*	*	*

frequently immigrant, opportunistic species which invade the islands from the mainland. Judging by the large populations of *P. flavescens*, which was definitely breeding on Barrow, there was considerable reinforcement of the locally bred population by immigration from elsewhere.

The uncertainty of the limited breeding areas on the islands must result in unstable populations of Odonata. This is confirmed by comments from several employees of the Western Australian Petroleum Company on Barrow Island that they had seldom seen such large numbers of dragonflies on the island as were present in May. Any migrant strong flyer from the mainland is a likely temporary inhabitant and further observation would certainly lead to additional species being recorded from time to time. Should, for any reason, substantial areas of fresh water become available on the island there would certainly be rapid colonization and establishment of breeding populations.

Acknowledgements

We would like to thank the Western Australian Petroleum Company Ltd for providing the transport to, on and between the islands and accommodation and laboratory facilities on Barrow; the Western Australian Wildlife Authority and the Department of Fisheries and Wildlife for permission to carry out research on Barrow Island and Dr J. A. L. Watson for confirming the identification of *T. loewi*.

References

Buckley, R. C., (in press). The vegetation of Barrow Island, W.A.

Burbidge, A. A. and Main, A. R., 1971. Report on a visit of inspection to Barrow Island, November, 1969. *Rep. West. Aust. Dep. Fish Faun.* 8: 1-26.

Butler, W. H., 1970. A summary of the vertebrate fauna of Barrow Island, W.A. *West. Aust. Nat.* 11(7): 149-160.

Butler, W. H., 1975. Additions to the fauna of Barrow Island, W.A. *West. Aust. Nat.* 13(4): 78-80.

Butler, W. H., 1975a. *Barrow Island.* W.A. Petroleum Co., Perth.

Montague, P. D., 1914. A report on the fauna of the Monte Bello Islands. *Proc. zool. Soc. Lond.* 1914(3): 625-675, pls I-IV.

Serventy, D. L. and Marshall, A. J., 1964. A natural history reconnaissance of Barrow and Monte Bello Islands, 1958. *C.S.I.R.O. Techn. Pap. Div. Wildl. Res.* 6: 1-23.

Smithers, C. N., 1970. Migration records in Australia. 1. Odonata, Homoptera, Coleoptera, Diptera and Hymenoptera. *Aust. Zool.* 15(3): 380-382.

Tillyard, R. J., 1917. *The biology of dragonflies.* Cambridge, 396 pp., 4 pls., 188 figs.

Watson, J. A. L., 1969. Taxonomy, ecology and zoogeography of dragonflies (Odonata) from the north-west of Western Australia. *Aust. J. Zool.* 17: 65-112.

Watson, J. A. L., 1974. The distributions of the Australian dragonflies (Odonata). *J. Aust. ent. Soc.* 13: 137-149.